WE CLAIM:

1. A multilayer composite attachment film for use in assembling semiconductor devices, comprising:
   a metal foil having first and second surfaces; and
   an adhesive layer attached on each of said surfaces;
   whereby said multilayer composite has an average modulus greater than the modulus of a polymerized encapsulation material.

2. The attachment film according to Claim 1 wherein said metal foil of said composite is a copper foil in the thickness range from about 30 to 150 μm and having a modulus of approximately 200 GPa.

3. The attachment film according to Claim 1 wherein said metal foil of said composite may be any metal, including nickel, zinc, and aluminum, with a modulus so that the composite modulus is greater than the modulus of the selected molding compound.

4. The attachment film according to Claim 1 wherein said adhesive layers of said composite are epoxy resin and acrylic resin blends in the thickness range from about 10 to 50 μm.

5. The attachment film according to Claim 4 wherein the modulus of said adhesive layers are selected so that said multilayer composite including said metal foil has an average modulus greater than the modulus of a polymerized encapsulation material.

6. A semiconductor device comprising:
   a semiconductor chip having an active and a passive surface, said passive surface adhesively attached to a substrate film by means of a

multilayer composite;

said composite comprising a metal foil having first and second surfaces and an adhesive layer attached on each of said surfaces.

7. The device according to Claim 6 wherein said passive chip surface is attached to the adhesive on said first foil surface, and said substrate film attached to the adhesive on said second foil surface.

8. The device according to Claim 7 wherein said adhesive layer between said chip and said first surface of said metal foil is between 10 and 30 μm thick, non-ultraviolet curable, and having a modulus of approximately 1 GPa.

9. The device according to Claim 7 wherein said adhesive layer between said second surface of said metal foil and said support film is between 20 and 50 μm thick, ultraviolet curable, and having a modulus of approximately 1 GPa.

10. The device according to Claim 6 wherein said substrate film is an insulator including polyimide in the thickness range of about 100 μm, integral with at least one layer of electrically conductive routing lines, a first plurality of terminals facing in the direction towards the chip, and a second plurality of terminals facing in the direction away from the chip.

11. The device according to Claim 10 wherein said terminals are bondable or solderable.

12. The device according to Claim 10 further comprising bonding wires attached to said first terminals and connecting said terminals to said active surface of said chip.

13. The device according to Claim 10 further comprising solder balls attached to said second terminals, said solder balls suitable for connection to an outside part.

14. The device according to Claim 6 further comprising a protective encapsulation, said encapsulation enclosing said active chip surface, said bonding wires, and portions of said first surface of said composite.

15. The device according to Claim 14 wherein said encapsulation is provided by molding compound, having a modulus of approximately 20 to 26 GPa.

16. The device according to Claim 6 wherein said multilayer composite has an average modulus larger than the modulus of the encapsulating molding compound.

17. The device according to Claim 6 wherein said semiconductor chip is made from a material selected from a group consisting of silicon, silicon germanium, gallium arsenide, and any other semiconductor material used in integrated circuit fabrication.

18. A method for fabricating a multilayer composite attachment film for use in assembling semiconductor devices, comprising the steps of:

providing a metal foil having first and second surfaces; and

attaching an adhesive layer on each of said surfaces;

thereby creating a multilayer composite having an average modulus greater than the modulus of a polymerized encapsulation material.

19. A method for assembling a semiconductor device, comprising the steps of:

providing a multilayer composite attachment film comprising a metal foil having first and second surfaces, a non-ultraviolet-curable adhesive layer attached on said first surface, and an ultraviolet-curable adhesive layer attached on said second surface;

providing a semiconductor wafer having an active and a passive surface;

placing said composite film with said ultraviolet-curable adhesive layer onto a transparent support film;

attaching said passive surface of said semiconductor wafer onto said non-ultraviolet-curable adhesive layer of said composite film; and

shining ultraviolet light through said transparent support film on said ultraviolet-curable adhesive film in order to reduce the adhesive strength between said composite film and said support film.

20. The method according to Claim 19 further comprising the steps of:

dicing said wafer and said attached composite film into singulated chips;

providing an insulating substrate film, integral with electrically conductive routing lines, a first plurality of terminals on one surface of said substrate, and a second plurality of terminals on the opposite surface of said substrate;

picking one singulated chip at a time from said support film and attaching said ultraviolet-

cured surface of each singulated chip to said substrate film;

curing said adhesives, creating hardened layers;

wire bonding said active surface of each chip to said first plurality of terminals on said substrate, respectively;

encapsulating each chip in molding compound so that said active chip surface, said bonding wires, and portions of said substrate film are protected;

attaching solder balls to said second plurality of terminals on said substrate film; and

singulating said substrate film to create individual devices.

21. The method according to Claim 20 wherein said step of singulating said substrate creates devices with outlines of chip-scale packages.